CLAIM AMENDMENTS

Sub C17

1. (CURRENTLY AMENDED) Apparatus for linearly slewing a device within a two-axis system, ~~limiting movement of a device in response to an input signal to a predetermined linear path in a two-axis system,~~ said apparatus comprising, in combination:

a) said device being fixed to a two degree-of-freedom gyroscope;

b) said gyroscope including ~~that includes~~ a first forcer for applying a torque with respect to a first rotor axis in response to an ~~said~~ input signal to precess a rotor about a second, orthogonal rotor axis and a second forcer for applying torque to said rotor with respect to said second rotor axis in response to a second signal;

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c) ~~said apparatus comprising~~ at least one cross-axis circuit for receiving said input signal and deriving said second signal as the derivative of said input signal so that said second signal drives said second forcer to precess said rotor with respect to said first axis to substantially cancel an effect of torque applied by said first forcer with respect to said first axis of said rotor whereby said device is slewed along a linear path.

2. (PREVIOUSLY CANCELED)

3. (PREVIOUSLY AMENDED) Apparatus as defined in Claim 1 wherein a gain of said at least one cross-axis circuit is inversely proportional to a nutation frequency of said rotor.

4. (PREVIOUSLY AMENDED) Apparatus as defined in Claim 1 wherein a transfer function T(s) of said at least one cross-axis circuit is

$$T(s) = Ks/(s + 2\pi k f_{nut})$$

where k is an integer and f_{nut} is a nutation frequency of said rotor.

5. Apparatus as defined in Claim 1 wherein said at least one cross-axis circuit comprises an operational amplifier.

6. Apparatus as defined in Claim 5 wherein said at least one cross-axis circuit comprises an operational amplifier including a feedback resistor in parallel with a feedback capacitor.

7. Apparatus as defined in Claim 1 further comprising a second cross-axis circuit arranged to receive said second signal and to generate said first signal in response thereto.

8. (PREVIOUSLY AMENDED) Apparatus as defined in Claim 7 wherein each cross-axis circuit generates an output signal comprising a derivative of an input signal.

9. (PREVIOUSLY AMENDED) Apparatus as defined in Claim 8 wherein a gain of each cross-axis circuit is inversely proportional to a nutation frequency of said rotor.

10. (PREVIOUSLY AMENDED) Apparatus as defined in Claim 7 wherein a transfer function T(s) of each of said cross-axis circuits is

$$T(s) = Ks/(s + 2\pi k f_{nut})$$

where k is an integer and f_{nut} is a nutation frequency of said rotor.

11. Apparatus as defined in Claim 7 wherein each of said cross-axis circuits comprises an operational amplifier.

12. Apparatus as defined in Claim 11 wherein each of said cross-axis circuits comprises an operational amplifier including a feedback resistor in parallel with a feedback capacitor.

13. (CANCELED) Apparatus for substantially nulling coning motion in response to the slewing of a two-axis gyroscope of the type that includes a rotor comprising:

a) a first forcer for applying a torque with respect to a first axis of said rotor in response to a slewing input signal;

b) a second forcer for applying a torque to said rotor with respect to a second axis, orthogonal to said first axis, in response to a second signal; and

c) a cross-axis circuit for receiving said slewing input signal and deriving said second signal as the derivative of said slewing input signal so that said second signal drives said second forcer to precess said rotor with respect to said first axis to substantially cancel an effect of torque applied to said rotor with respect to said first axis by said first forcer.

14. (PREVIOUSLY CANCELED)

15. (CANCELED) Apparatus as defined in Claim 13 wherein a transfer function of said cross-axis circuit is

$$Ks/(s + 2\pi k f_{nut})$$

where k is an integer and f_{nut} is a nutation frequency of said rotor.

16. (CANCELED) Apparatus as defined in Claim 13 wherein said cross-axis circuit comprises an operational amplifier including a feedback resistor in parallel with a feedback capacitor.

17. (CANCELED) A method for nulling a first oscillatory torque applied by a first forcer with respect to a first axis of a spinning gyroscope rotor to precess the rotor with respect to a second, orthogonal axis of the rotor, said method comprising the step of applying a second torque with respect to said second axis of said rotor, said second torque being the derivative of said first torque, to precess said rotor with respect to said first axis to substantially cancel an effect of said torque applied to said rotor with respect to said first axis by said first forcer.

18. (PREVIOUSLY CANCELED)

19. (CANCELED)A method as defined in Claim 17 wherein said torque applied with respect to said second axis of said rotor is a function of a nutation frequency of said rotor.

20. (CANCELED) A method as defined in Claim 17 wherein the torque applied with respect to said second axis of said rotor is related to the torque applied with respect to said first axis of said rotor by

$$Ks/(s + 2\pi k f_{nut})$$

where f_{nut} is a nutation frequency of said rotor.

21. (NEW) Apparatus as defined in Claim 1 wherein said device is a camera.